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Modified setae of the salticid pedipalp

Republication Version 1 (September 18, 2006)

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Original pagination is retained for reference in this republication of the article originally published as: Hill, D. E. 1977 Modified setae of the salticid pedipalp. *Peckhamia* 1 (1): 7-9.

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MODIFIED SETAE OF THE SALTICID PEDIPALP. D.E. Hill

In addition to the several size classes of ordinary and presumably mechano-receptor setae (Foelix & Chu-Wang 1973a) which arise from the cuticle of the salticid pedipalp, three groups of specially modified setae are present (Fig. 1).

A distinctive group of broad white scales are present upon the dorsal surface of the femur of the pedipalp of the adult male Phidippus audax. The shafts of these modified setae emerge from the cuticle at an angle and subsequently bend in a distal direction to rest against the cuticle. The distribution of these highly reflective white scales is probably significant in the visual recognition of the male by the female of this species. The form and distribution of similarly modified setae upon the pedipalps of other salticids varies greatly.

Generally, an apical pit containing a large number of whorled setae, much like the whorled setae of the salticid pretarsus described by Hill (1977, in press), is present, inserted into the distal tarsus of the pedipalp. The tips of these presumed contact chemoreceptors (Foelix 1970; Foelix & Chu-Wang, 1973b) extend to a uniform length, and thus it is possible that they could all sample the substrate at the same time. These are very

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numerous in the adult male of P.audax (Fig. 1), but they apparently occur in lesser numbers in females and immatures. The presence of these setae correlates with the frequently observed tapping of the substrate with the pedipalps by salticid spiders. This behavior is especially evident in adult males which have just come into contact with female silk. Presumably in response to contact with a pheromone released by the female and associated with her silk, the behavior of P.audax changes dramatically from a walking pattern to a turning display with forelegs outstretched at a wide angle.

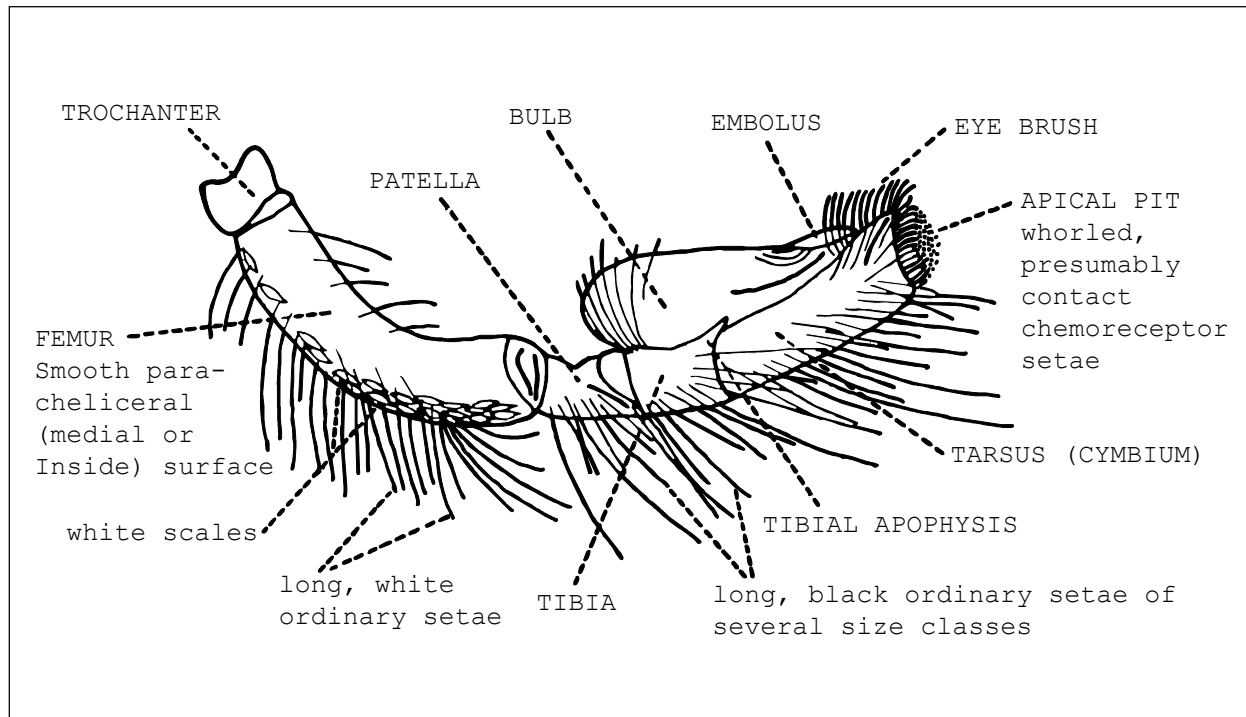


Fig. 1. Inside (medial) view of the right pedipalp of an adult male *Phidippus audax* from Johnson County, Iowa (X 20).

Finally, a group of specialized setae of the distal tarsus constitute an eye brush in all salticids examined (Fig. 1). These setae extend to a rather uniform length. SEM observation has shown that a series of decurrent, slightly recurved spines project from the ventral margin of the shaft of each seta just where it comes into contact with the AME as the pedipalp is brought down (dorso-ventrally) in a deliberate grooming motion against the surface of the eye. The action of this eye brush has been observed quite clearly in a living adult female *P.princeps* under a dissecting microscope, and there is no reason why this specialized function should not be applicable to the Salticidae in general.

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